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This paper outlines an approach to devising master social indicators which reflect conditions in a major area of human concern. There are five principal sections: Section I is an introduction; Section II sketches a heuristic model for categorizing indicator concepts, and suggests how a hierarchically organized scheme of indicators can be aggregated; Section III discusses the interrelationships of goals, indicators, and attainment levels; Section IV attempts to structure the findings of a preliminary draft of the Social Report (U.S. Department of Health, Education, and Welfare, January, 1969) in terms of the heuristic model of society, and points out why it is not possible to derive master indicators from the draft of the Social Report alone; Section V briefly outlines some key considerations in constructing a comprehensive national social data system. Included in Section IV are 14 tables categorizing 14 designated indicators which measure "the quality of life." These tables establish attainment categories, subcategories, and possible indicators. It is hoped that researchers will pursue some of the avenues suggested by the analysis, with particular emphasis on the role of education in social change. (Author/CJ)

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TOWARD MASTER SOCIAL INDICATORS

Research Memorandum

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Research Memorandum

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TOWARD MASTER SOCIAL INDICATORS*

I INTRODUCTION

This paper outlines an approach to devising master social indicators. A master, or global, indicator is one that reflects conditions in a major area of human concern, as distinct from a subarea. Thus, a measure of the "quality of life" in urban centers would be a master indicator reflecting the net effect of numerous subindicators, such as occupational and educational status, health, safety, housing, and others. The term is not a precise one, since there is no clear cut-off point between master and subindicators, but it nevertheless is useful to distinguish between macro and micro measures. Bertram Gross's[1]† references to "grand abstractions" (such as abundance) and "intermediate abstractions" (such as wealth) may be taken as roughly equivalent to what is meant by master social indicators.

Research in the important field of social accounting is still in its early stages. Everett Hagen[2] has set forth what serves as a guide to the likely evolution of this new domain of research:

> As judged by the history of the physical, biological, and social sciences, study in any field is apt to begin with a none-too-ordered description--followed by a cataloguing

---

* This paper represents the work of a team assembled by the Educational Policy Research Center of Stanford Research Institute, Menlo Park, California. Principal members of the team are Ely M. Brandes (consultant), Eric Bredo, O. W. Markley, Arnold Mitchell, Robert Roelofs (consultant), and Anthony J. Wiener (consultant).

† Superscripts denote cited references listed at the end of this paper.

> on bases that seem to make sense. As understanding grows, the systems of classification become more closely related to the functioning of interacting elements. Gradually, generalizations about functioning are reached which are useful in predicting future events. As the generalizations gain rigor, they take the form of analytical models of the behavior of the elements being studied. They take the form, that is, of systems.

The present state of the art in social accounting seems to be somewhere between a "none-too-ordered description" and a "cataloguing." It is the purpose of this paper to suggest the next step, a "system of classification," and to indicate how in the distant future analytical models of society might be devised.

The paper has four principal sections following the introduction. Section II sketches a heuristic model for categorizing indicator concepts. This model suggests how low level indicators perhaps can be aggregated into master indicators within a hierarchically organized schema composed of two main elements, one relating to the individual and the other to the social system.

Section III of the paper discusses the interrelationships of goals, indicators, and attainment levels. One purpose is to show that values are an integral part of any indicator system and that values, too, can be hierarchically ordered.

In Section IV, an attempt is made to structure the findings of a preliminary draft of the Social Report* in terms of the heuristic model of society. The section points out why it is not possible to derive master indicators from the draft of the Social Report alone.

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* Draft Social Report now in preparation by a HEW panel, under the direction of Mancur Olson, Jr. This document was published in mimeographed form by the U.S. Department of Health, Education, and Welfare in January 1969 under the title of "Toward A Social Report."

The final section of this paper briefly outlines some key considerations in constructing a comprehensive national social data system. Discussion of the advantages of such a system concludes the manuscript.

The present study is clearly only a beginning. The Educational Policy Research Center of Stanford Research Institute hopes to pursue some of the avenues suggested by the analysis, with particular emphasis on the role of education in social change. This paper is, on one hand, a logical forerunner to the more specific task of attempting to identify education's place in the total societal structure; the authors hope that others will discover in it clues to tackling the outstanding problem of our times--that of learning how to build the kind of society the nation wants.

II A HEURISTIC MODEL OF SOCIETY

If master social indicators are to be derived, it is essential that some conceptual model be devised that will distinguish high level (that is, master measures) from low level measures. The model shown in Figure 1 is an attempt to construct a schema of society that makes such distinctions through the use of a hierarchy of goals and related indicators. In its present stage of development, the model is regarded as heuristic only.

Characteristics of the Model

The model has several noteworthy characteristics, as described below.

Institutional and Individual Sectors

The model is divided into two principal parts or "ladders." One describes the dimension of the social system and the other the dimension of individuals living within the social system. This dichotomy, designed to reflect the two basic viewpoints for a set of social indicators, is preserved from Level II (overall quality assessments) down through the lowest level of actual data.

This dual schema permits the development of social accounts in terms of the input from social, business, and government activities and the output for individuals and groups. The model consists of a series of levels proceeding downward from the most global measures, through increasingly specific indicators, to the actual data. Although only six

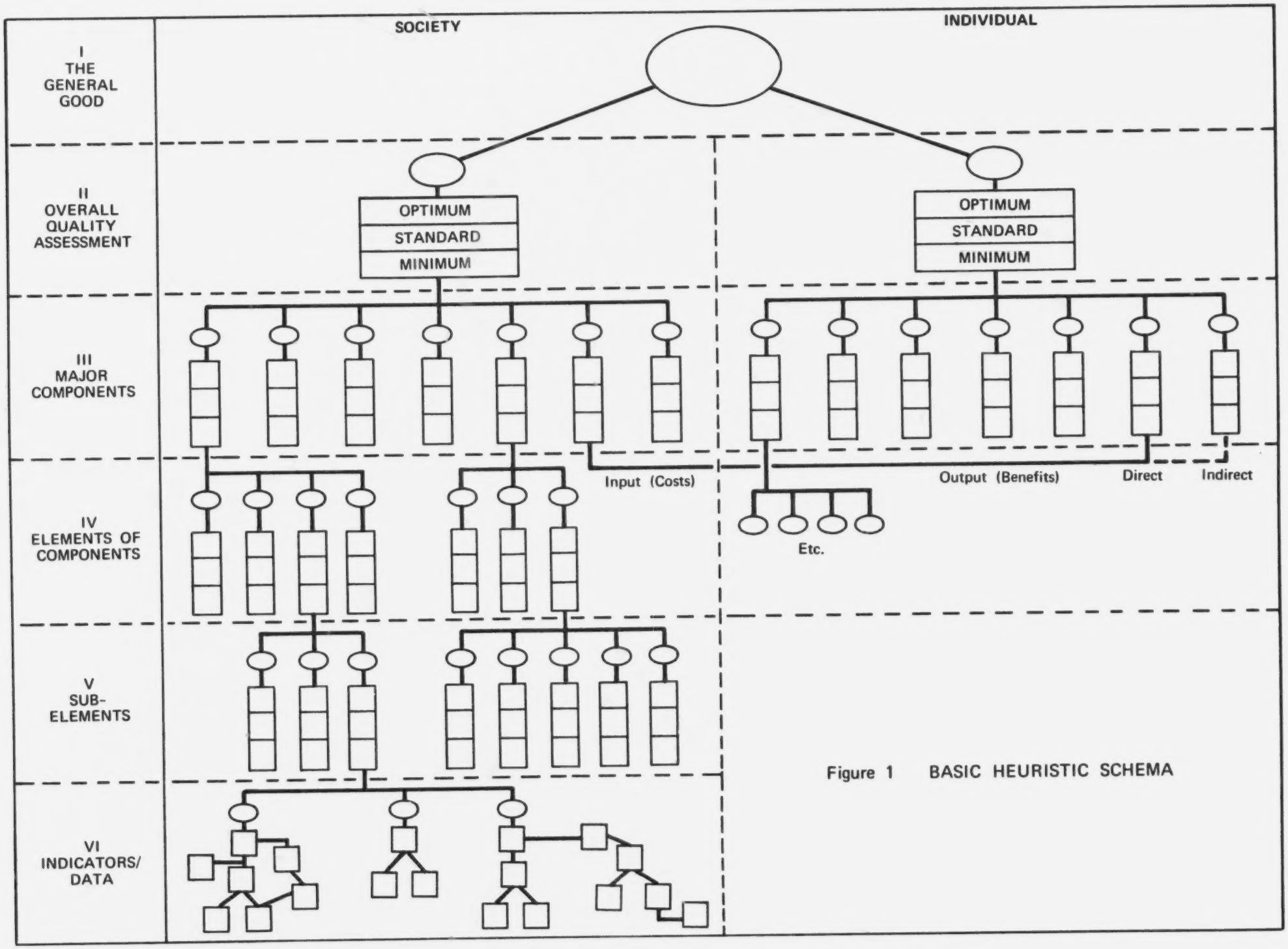
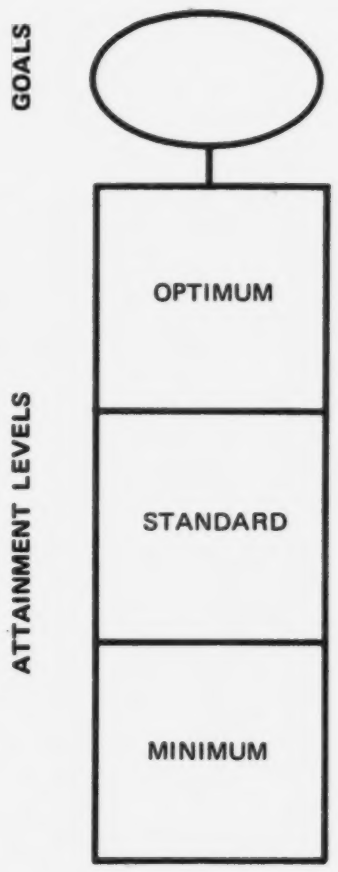


Figure 1 BASIC HEURISTIC SCHEMA

levels of analysis are shown, it might prove necessary in a specific analysis to add intervening levels.

Goals and Attainment Levels

A paradigm for qualitative evaluations is employed consistently on all levels of the heuristic schema. For the present model, such a paradigm requires two distinct elements: a goal-specification and an attainment-measure scale that indicates the degree to which the goal has been achieved. Goals are indicated by ovals, and the measurement scale is indicated by rectangles subdivided into three basic qualitative levels. If goals are to serve as progress bench marks, they must be explicitly specified and recognized. The general conception of attainment levels, as discussed later, is indispensable to any schema designed to generate master indicators.



So as not to bias the schema in favor of any particular scale of evaluation, and to provide parallel terms for both sides of the model, levels of attainment are suggested by such conventional terminology as minimum, standard, and optimum. Depending on the purpose to be served and refinements in qualitative analysis, it is clear that degrees might be assigned to the "minimum" and the "standard" parts of the scale. "Optimum" would remain open-ended, since

possibilities for social and individual realizations of potential can be assessed only in utopian terms.

Some Uses of the Model

The uses of this model are numerous. As described later, it could form the basis for social reporting, trend analysis, and even predictive social accounting.

More specifically, the model could be used to aid in program evaluation and to indicate progress from the individual and societal perspectives. Finally, by yielding information at different levels of quality and abstraction, it can help in the setting of current priorities.

Levels in the Model

Levels I and II represent the two highest levels of the model. At present, it seems visionary to hope for so global a measure as "the general good." However, if further work revealed means of closely correlating social performance with individual attainment scale, some such ultimate measure of national performance could be envisioned. The general good, for example, might be measured in terms of the fraction of the social system and the individual's psychological environment perceived as hostile, inauthentic, or alien. The work of Becker[3] and of Etzioni[4] seems to reflect this view. A similar notion has been expressed by Vallance.[5] The concept is also reminiscent of the "high synergy" society (one "in which the individual by the same act and at the same time serves his own advantage and that of the group"), defined by Ruth Benedict and described by Abraham Maslow.[6] Bay's[7] concept of maximization of freedom for all individuals is another possible approach to gauging the general good.

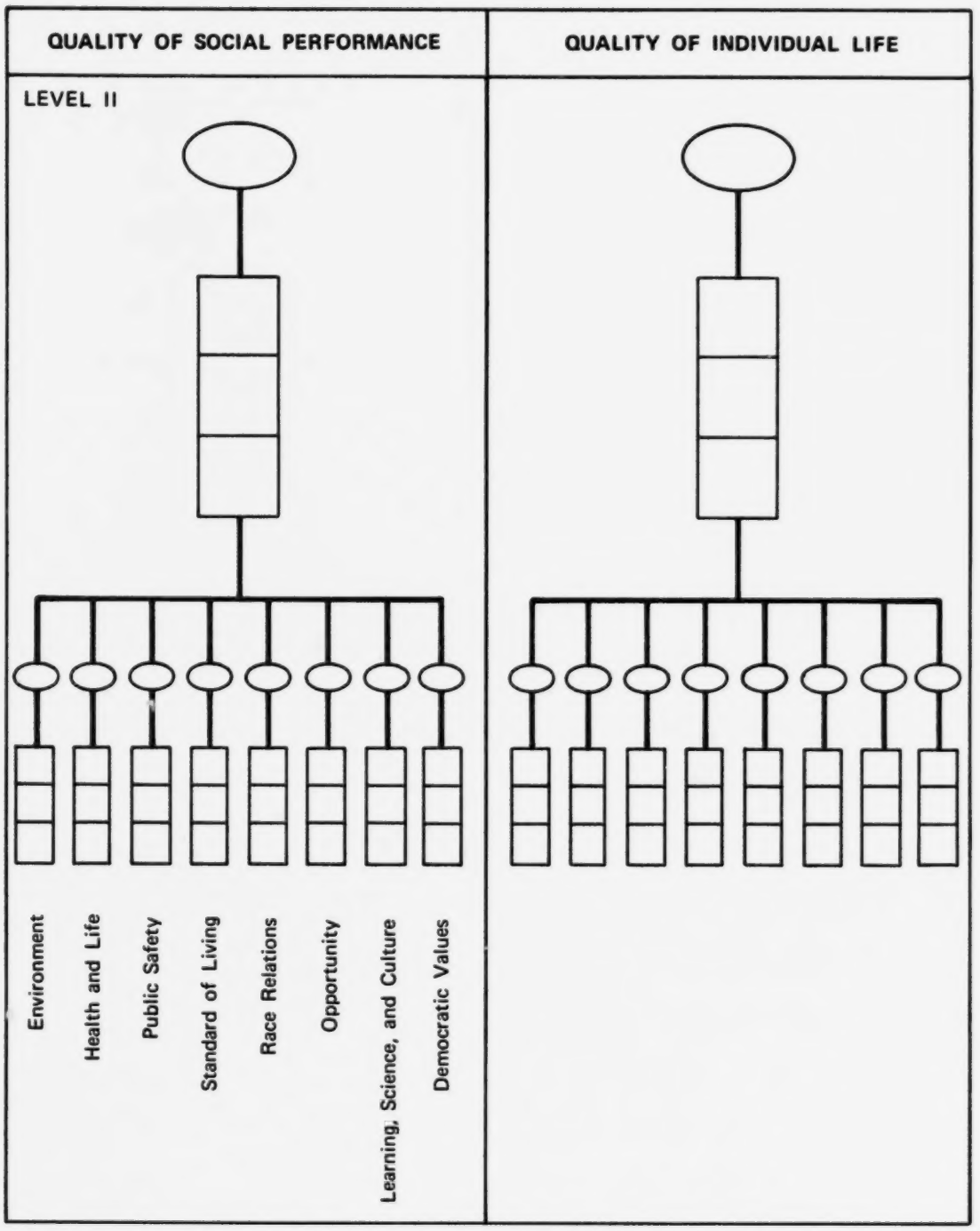
Level II is intended to provide general quality assessments in terms of the social system and the individual. This is the highest level of social indicator envisioned in the present work.

As shown in Figure 2, Level III deals with major indicator areas. Taken together, these areas are intended to define the overall quality of society in terms of social performance and individual life. The areas shown are those identified in the draft of the Social Report; they may or may not be an ideal choice, but they are sufficient to suggest the kind of breakdown required by the model. These areas inevitably overlap to some extent; overlap, however, is desirable if an adequate estimate of the multiplex interactions of the various facets of social and individual life is to be obtained.

Because of the diversity of subelements comprising the major indicator areas, it is difficult to assign realistic attainment levels. However, an attempt to do this is made in Section IV of this paper.

If it proves possible to devise or find indicators that measure attainments at this high level of abstraction, some notion of basic priorities should emerge. For example, if minimum standards of overall environmental quality are not maintained, minimal levels of health would be threatened. If this occurred, income, housing, opportunity, and other conditions would be placed in jeopardy. Obviously, judgments of this sort would be highly relative and contingent on a series of complex evaluations.

The model indicates that, as analysis proceeds toward specific indicators, major indicator areas must be subdivided into arrays of component elements. In the draft Social Report, for example, the indicator area "environment" subdivides into four components at Level IV and three additional parts at Level V. This process of successive breakdown of indicator areas into finer-grained components can continue



* Examples are chapters in the *Social Report* now in preparation by a HEW panel, under the direction of Mançur Olson, Jr.

Figure 2 LEVEL III MAJOR INDICATOR AREAS*

to whatever extent seems justified. Certainly there is nothing sacrosanct about the six levels shown in the schema.

At the lower levels, specification of goals and attainment levels can be more precise than at higher levels of aggregation. This, in turn, simplifies the task of making realistic cost-benefit analyses relating inputs to the social system and outputs in terms of individuals.

What can be synthesized at upper levels depends entirely on the material available at the lowest levels of the schema. From data and evaluations of their relevance would be derived the actual content of specific social indicators. Figure 1 suggests that Level VI consists of a complex array of data, often overlapping, and tying into detailed goal specifications.

It is clear, of course, that hosts of methodological problems accompany the linkage of data to goals and their ultimate conversion into operationally incisive indicators at higher levels. Many of these problems have been extensively discussed elsewhere by students of social accounting.

III GOALS, INDICATORS, AND ATTAINMENT LEVELS

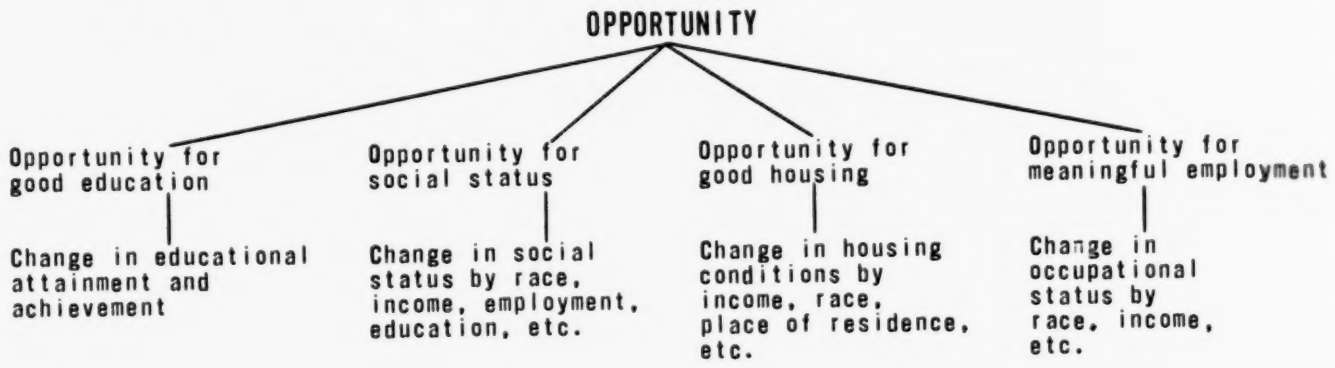
Goals and Indicators

Social indicators, as they have been defined, are ideally measures of social output; that is, they measure the attainment of a goal. For example, if the goal is attainment of good health, the sum of money spent on health is not necessarily a good indicator. The money represents an input into the health care industry that presumably is related to the output, health, but in an uncertain way. A better indicator of health would be a measure more closely related to people's physical activity, such as the "free-of-bed-disability index " proposed in the draft Social Report.

As Gross has noted, indicator concepts can be thought of as being at different levels in a hierarchy, depending on their degree of abstraction. They may range from "grand abstractions" that are broad but vague, down to concepts of lesser degree of abstraction that are quite specific. Freedom, equality, and opportunity are examples of "grand abstractions," while relatively more specific concepts might be equal education by race or opportunity for occupational mobility. To arrive at a set of indicators to cover a concept area, one starts from the most abstract concepts and in a "theoretic-deductive" fashion disaggregates into the most pertinent subconcepts. A specific example may make this process more understandable.

The concept of opportunity is certainly very encompassing. One possible way to disaggregate this concept is to subdivide it into four areas: opportunity for a good education, opportunity for social status, opportunity for good housing, and opportunity for meaningful employment.

These subconcepts might, in turn, be disaggregated into still finer subconcepts. A whole hierarchy can then be drawn, as in the following diagram.


OPPORTUNITY
Opportunity for good education
Opportunity for social status
Opportunity for good housing
Opportunity for meaningful employment
Change in educational attainment and achievement
Change in social status by race, income, employment, education, etc.
Change in housing conditions by income, race, place of residence, etc.
Change in occupational status by race, income, etc.

The important point to note, and one that has seldom been clearly pointed out, is that the process of disaggregation entailing the definition of indicator concepts and subconcepts is essentially the process of goal setting. Since indicators are measures of output, they necessarily are related to the attainment of goals. The definition of indicator concepts, then, amounts to a definition of goals. Naturally, there are always numerous goals that fall outside any given set of social indicators because, as is well established, organizations have a tendency to exert their greatest efforts towards achieving goals for which there is a measure of output and to ignore "unmeasured goals" for which they can less readily be held accountable. Thus, one danger in designing social indicators is that of goal-setting by omission rather than by commission.

Goals and Consensus

The highest abstractions can ordinarily achieve a high degree of consensus. They are the things that "stir men's souls." Nearly everyone agrees that freedom is a desirable goal, because the notion is so flexible that each person can read his own meaning into it. More specific goals present a different situation, however. Specific goals often imply means; that is, specific goals usually define the means by which the

more general goals are to be attained and hence become objects of controversy. Specific goals are related to more general goals in what Dewey called a "means-ends continuum." Thus specific goals help define the means of attaining more general goals which, in turn, suggest the means of attaining even more general goals.

The difficulty implicit in this situation is that, although high level goals may be agreed on by most people, the means of reaching these goals (which are to some degree defined by means of specifying a set of social indicators) may represent the preferences of only a limited interest group. To take a current example, there are some groups that feel they have little stake in existing institutions; for them, the preferred means of attaining their goals consist of radical change or even overthrow of current social structures. Other groups are at the opposite pole, believing that their interests are best furthered by sedulous protection and conservation of the existing social institutions. A set of social indicators could easily fall into the error of tacitly representing only one of these positions. The example of opportunity cited earlier is a case in point: A set of indicators that emphasized opportunity for status strictly in terms of current notions, opportunity for housing strictly in terms of current norms, and opportunity for employment strictly in money-making terms, would reflect a severe bias toward existing conditions. The emphasis would thus be on bringing the poorer and less educated people up to what is seen as the norm as defined by those currently setting societal standards. This phenomenon underlines the importance of knowing who sets the goals.

The fallacy of thinking wholly in terms of what exists is illuminated by the problems encountered in developing nations. These countries are finding that the road to economic and social development is not always the same as that trod earlier by developed nations. There are, instead, many possible paths. Similarly, a set of indicators designed to measure

the progress of the "underpriviledged" toward today's norms runs the danger of implying that there is but one road to social and human development.

The opposite assumption that existing institutions and means can be completely ignored is also false. Ideally, one would strive to find indicators that represent a more complete range of possibilities than either of the two extreme positions: One might seek out some indicators dealing with the problems of existing institutions (like unemployment), and others that measure concerns nearer the horizon of possibilities (like the degree to which work is a creative and fulfilling process for people). Indicators that cover the entire span can help to show both where the most current, pressing problems lie and how rapidly the nation is moving toward longer-range objectives.

The Measurement of Progress

Issues such as those discussed above raise the question of whether it is possible to measure progress or whether only relative change can be assessed. This is a philosophical issue of long standing. The answer seems to be that one can indeed measure progress or qualitative change, but only to a limited degree. For example, with a fair degree of certainty one can say today what would be a better or worse situation for tomorrow. Similarly one can say today that today's situation looks better or worse than it was yesterday. However, today's good fortune may, a year from now, appear to have been bad fortune. In other words, it is often impossible to say that a changed situation is better or worse than the old on some absolute scale of progress. Nevertheless, one can do more than merely note that the situation is different; one can say that it seems relatively better or worse than the past from the standpoint of present values and concerns. As an illustration, industrialization was once equated with progress. From the viewpoint of that

time, it was obviously a development much to be desired. Today we know, however, that industrialization is a mixed blessing, bringing with it new problems as well as new benefits.

As progress is seemingly made towards the attainment of a goal, the goal itself takes on emergent properties; its scope and interrelatedness with other aspects of life seem to increase. At one point, for example, the principal goals of health programs were the prevention of major outbreaks of contagious and deadly diseases. Increasingly the emphasis has shifted toward long range preventive medicine and the treatment of more minor ailments. Today, there is growing realization that substantial improvement in physical health and longevity is unlikely without improvements in mental health and the reduction of social strains. Thus, at each stage in progress towards better health new concepts emerge as the most relevant to that stage and each new phase, having subsumed the previous stage's goals, adds new dimensions.

Indicators can be defined in similar fashion to measure relative progress towards social goals by structuring them in terms of levels of attainment. Starting from today's standards, one can ask how many people in what population segments have achieved an "average" or "normal" level of attainment. One can also ask what groups seem to suffer circumstances definitely below average. Finally, one can ask what groups enjoy a level of attainment qualitatively higher than the norm.

Values and Attainment Levels

The development of a set of attainment levels clearly entails value choices, since it implies that one set of circumstances is poor or good relative to other existing conditions. In short, it amounts to a qualitative ordering of possible sets of conditions.

Such preference statements are difficult to make meaningfully because they require a high level of knowledge of all the components and interactions of the system for which the preferential outcomes or states are being set. To take a contemporary example, in this country some individuals have apparently decided that economic prosperity is the summum bonum of human existence and so have pursued this goal regardless of other consequences. For some of them, at least, the result has meant anomie and a sense of unfulfillment. This may be, in short, an example of suboptimization rather than overall optimization.

Generally it is possible to recognize the immediate, pressing problems facing individuals and society and conclude that things would indeed be better if the problems were less severe. Today, for example, the United States faces increasing environmental pollution, racial hostility, and rising crime rates. Obviously the country would be better off without such problems, but to base national strategy entirely on elminating problems without emphasizing a more positive approach of implementing ideals unnecessarily restricts attention to the strident symptomatic problems rather than their underlying causes. To reiterate, the ability to deal fundamental underlying issues in an evaluative scheme presupposes a high level of knowledge about the overall system. The tasks of understanding the structure of the system and evaluating its performance as an entity go hand in hand.

Structuring Attainment Levels

The Individual

Underlying the concept of attainment levels for the individual is the notion that human needs and values of widespread, if not universal. acceptance can be identified. Further, these widely held and agreed-on needs and values are in some sense sequentially linked and perhaps ordered in a hierarchy.

The anthropologist Clyde Kluckhohn[9] puts the case well:

> ... standards and values are not completely relative to the cultures from which they derive. Some values are as much given in human life as the fact that bodies of certain densities fall under specified conditions. These are founded, in part, upon the fundamental biological similarities of all human beings. They arise also out of the circumstance that human existence is invariably a social existence.... There are important variations, to be sure, in the conception of the extent of the in-group and in conditions. But the core notion of the desirable and the nondesirable is constant across all cultures.... Conceptions of "the mentally normal" have common elements.... Reciprocity is another value essential to all societies. Moreover, the fact that truth and beauty (however differently defined and expressed in detail) are universal, transcendental values is one of the givens of human life.... The very fact that all cultures have had their categorical imperatives that went beyond mere survival and immediate pleasure is one of vast significance. To the extent that such categorical imperatives are universal in distribution and identical or highly similar in content, they afford the basis for agreement among the peoples of the world.

Many social observers have attempted to classify these common concerns and have come up with remarkably similar conceptions. The psychologist David McClelland[10] summarized the schemata of Kardiner, Leighton, Kluckhohn, and others in his conclusion that the child in any culture must deal with broad problems of (1) protection and support, (2) expression and regulation of affect, (3) mastery in the external world, and (4) self-direction and control.

Abraham Maslow[11], also a psychologist, has developed a similar conceptual scheme. He regards human beings as having intrinsic needs that must be fulfilled for full growth and development to take place. These needs are (1) survival and safety needs, (2) security needs, (3) belongingness and love needs, (4) esteem needs, and (5) needs for self-actualization. He views these needs as arranged hierarchically, with survival needs at the bottom and self-actualization needs at the top.

The lower needs are seen as "prepotent" over the higher needs. Thus, when a person's very survival is threatened, he is unconcerned with such luxuries as a feeling of belongingness or with his self-esteem and devotes all his efforts toward remaining alive. Such a person is quite literally "hung up" at a survival level. As more and more of the basic needs in the hierarchy are fulfilled, the individual is able to grow toward self-actualization and the development of his unique potentialities.

A similar view is taken by Erik Erikson.[12] Erikson's growth stages are the following: (1) basic trust, (2) autonomy, (3) initiative, (4) industry, and (5) identity. The following tabulation shows how the schemes of McClelland, Maslow, and Erickson can be related to each other in an almost one-to-one fashion. It is worth noting that there are many other social scientists whose views are similar to the three sketched here.

	McClelland	Maslow	Erikson
4.	Self-direction and control	Self-actualization	Identity
3.	Mastery of external world	Esteem	Industry, initiative
2.	Expression and regulation of affect	Belongingness and love	Autonomy
1.	Protection and support	Security, survival	Basic trust

Such a categorization of needs provides a basis for describing an individual's overall welfare, or, in broader terms, the quality of his life. To the extent that individuals can afford to be concerned with their higher needs and are little constrained by their lower needs, they are free to actualize themselves in whatever way is most natural

to them. The more they are able to do this, the higher the quality of their lives.

Society

The works of observers such as Aronoff,[13] Gross,[14] Etzioni,[15] Tiryakian,[16] and Suchman[17] provide more than ample testimony to the complexity of the interaction between the individual and society. The socialization literature, from both psychological and anthropological viewpoints, further enriches the picture.

As stated repeatedly in Goals for Americans,[18] the good of the individual is regarded as the overarching purpose of American democracy. "Quality of society," therefore, must be measured in terms of providing a satisfactory environment for the people comprising that society.

In selecting attainment levels, subcategories, and possible indicators for the social structure and its processes, an attempt was made to reflect national goals as set forth in Goals for Americans. In general, the highest attainment levels are stated very broadly so that they would be relatively immutable and also susceptible of reasonable agreement among most citizens. Universal agreement on goals is clearly not possible in a pluralistic nation, but modal agreement is perhaps within range.

The attainment levels of society were selected with a three-pronged set of social goals in mind. The first of these might be called goals of maintenance or preservation. These goals relate to those conditions that must be met to ensure the very existence of a society. Typical goals that come under this heading are the goals related to defense, the preservation of a strong economy, and the solution of such problems as control of air and water pollution.

The second set of goals can be characterized as goals dealing with the diffusion of benefits. One of the most persistent and characteristic trends in U.S. society is the movement toward equality in all its aspects. This movement covers both the extension of social and economic benefits to ever-larger portions of the population and the active removal of discriminatory practices. As long as equality in every aspect is still a dream rather than an achievement, the pursuit of equality must rank high among the national goals.

The third set of goals can be described as goals of achievement or excellence. Most of the goals mentioned earlier can justly be described as having been fathered by necessity. Certainly the goals of preservation and maintenance are dictated by need, and while benefit-diffusing goals originally stem from a freely chosen principle--the principle of equality--the current pursuit of these is dictated by necessity rather than by choice. (One could frame a proverb about long promised, but nondelivered gifts becoming birthrights in time.)

IV AN ATTEMPT TO DERIVE MASTER INDICATORS

As an initial step toward putting into operation a schema such as that outlined in Section II, an attempt was made to specify attainment levels and indicators for the social system and the individual. Once again the draft Social Report was utilized as a starting point. The draft Social Report contains data collected in seven major "indicator areas." (The manuscript of an eighth area had not been completed at the time of this writing.) The problem was to array these data in such a fashion that they would yield some kind of "social account" as the term is used in the chapter on "Social Indicators and Social Accounts." As defined there, a social account is an analytical framework that enables one to assess the change in attainment toward each of a set of social goals as a consequence of a particular program. By assigning a monetary equivalent to the change in attainment of each of the goals, one is then able to compute the total value of the benefits of the program.

As is pointed out in the draft Social Report, this kind of social accounting is beyond the present state of the art. Despite advances in PPBS-type research, it still is not possible to convert all relevant social benefits into dollar equivalents. It is not possible, for example, to specify with much precision how well human needs are met by a given program. Ideally, one must specify not only that one program is better than another, but also just how much better it is. To implement such a system of social accounting one must, for example, be able to say level X of discrimination is $100 worse (or $1,000,000 worse) than level Y.

Although numerically scaled assessments of overall welfare seem not to be feasible today, it may still be possible to rank-order situations in terms of their preferability. That is, although exact quantification

in dollar terms may not be possible, one may still be able to say that one situation is indeed preferable to another. In view of this possibility, an effort was made to array the data of the draft Social Report into attainment levels for each of the indicator areas. These attainment levels, although not quantitative, represent rough degrees of preferability as measured by basic "quality" or "better than" criteria.

Key Problems

The problems to overcome in developing "higher level" measures of quality of life and quality of society from data presented in the draft Social Report are basically of three types:

1. Appropriate attainment level categories must be devised for each of the indicator areas identified in the Social Report.

2. An approach must be found to assessing where the nation as a whole, and segments of it, stand in the attainment spectrum in each indicator area.

3. A way must be found to interpret attainments in the various areas in terms of some overall quality measure; to do this entails making quality-of-life assessments comparable (or at least weighted) across the indicator areas.

The ultimate aim of such a line of endeavor is to obtain measures of national attainment for each of the subattainment categories, followed by measures for each of the attainment categories, and then by measures for each of the indicator areas to which the attainment levels apply. A final step would be to aggregate attainments in each indicator area in terms of some overall quality scale for both the individual and the society.

Tables 1-14 represent an attempt to fit the data of the draft Social Report into a system of attainment levels devised to describe each of the seven indicator areas set forth in the draft report. Tables 1 through 7 describe the individual half of the heuristic model; Tables 8 through 14

deal with the social structure portion. The asterisked items are treated, at least in part, in the draft Social Report.

Each of the indicator areas is divided into three principal attainment categories. The first-listed level is supposed to represent the minimum for living in present-day America. Reading across the tables, subcategories of each level are given, followed by selected possible indicators that might serve as measures of attainment with respect to the category.

The second attainment category deals with an intermediate level of possible individual or social attainment within the indicator area. In general, this second level can be regarded as the national norm. The third and highest level attempts to specify the conditions that would enhance personal growth and fulfillment for the individual, while attaining the social goals of preservation, diffusion of benefits, and progress toward excellence.

No attempt has been made in these tables to identify exactly what quantitatively measured components correspond to each level of attainment, partly because such measures shift over time as standards change and the intensity of concern ebbs and flows. The tables in their present form should be regarded as merely illustrative--more suggestive of an approach than of a finished design--showing how the concepts and data presented in the Social Report might be arranged, along with additional data, to derive overall qualitative indications of national achievement in seven crucial areas of human life. To make the approach operational, far more copious data at the indicator level would be essential. Moreover, numerous methodological problems are apparent, some of which may conceivably force adjustments to the basic approach suggested here.

Table 1

HEALTH (INDIVIDUAL)

Attainment Category	Subcategories	Possible Indicators
Free of significantly disabling ill health	* 1. Free of bed or hospitalization	* 1. Expected lifetime free-of-bed disability
	* 2. Free of incapacitating mental illness	* 2. Rates of mental breakdown and institutionalization
Capable of adequate functioning	1. Able to care for self	1. Expected lifetime free of institutionalized care
	2. Able to lead an active life	2. Percentage of people who rate themselves as active--both physically and mentally; absenteeism rates
Fully functioning	1. Contributing, participating member of society	1. Span of creative adult activity from beginning work until "retiring" psychologically
	2. Capable of self-realization, fulfillment	2. Percentage of elderly who feel they have fulfilled themselves
	3. Spontaneously and creatively active	3. Percentage of adults who feel that what they are currently doing for employment is what they would do for fun, if given the choice; judged mental health†

† See, for example, Lester Luborsky's "Clinical Judgments of Mental Health," which proposes a 0-100 scale. In Arch. Gen. Psychiatry, Vol. 7, 1962.

Table 2

OPPORTUNITY (INDIVIDUAL)

Attainment Category	Subcategories	Possible Indicators
Minimal opportunity	Opportunity for the poor and minority groups to gain:	
	* 1. Basic education, literacy	1. Changes in literacy rates through time, by income and status
	* 2. Employment	2. Changes in unemployment rates through time, by income and status
	3. Adequate nutrition	3. Changes in incidence of malnutrition and disease
	4. Adequate shelter	4. Changes in housing quality for poorest 10%
	5. Minimal comforts of life	5. Percentage of income spent on necessities (food, clothing, shelter), by income level
Opportunity for social advance	Opportunity to gain:	
	* 1. Occupational advance according to one's capability	* 1. Occupational changes in a generation
	* 2. Educational advance in terms of achievement and attainment, given one's capabilities	* 2. Educational changes in a generation
	* 3. Income advance	* 3. Changes in personal income and in income distribution over time
	* 4. Improvement in residence	* 4. Changes in housing quality, density, and degree of segregation

Table 2 (concluded)

Attainment Category	Subcategories	Possible Indicators
Opportunity for personal growth	Opportunity to gain and enjoy:	
	1. Leisure	1. Changes in leisure time available to people of different income and status levels
	2. Creative endeavors	2. Literary publications, art exhibits, attendance at theatres, concerts, ballet, opera
	3. A personally meaningful education	3. Percentage of people who see their education as a positive and enabling process, as a function of income, status and minority group; change in this through time; degree of alienation among students
	4. An occupation that agrees with one's beliefs and ideals	4. Percentage of people who feel that their job is important and vital and fits their talents and abilities
	5. Access to beautiful surroundings	5. Land area allotted for recreation and relaxation in major cities, per capita

Table 3

ENVIRONMENT (INDIVIDUAL)

Attainment Category	Subcategories	Possible Indicators
Life-supporting environment--physical minimums	* 1. Air, water pollution below dangerous levels	1. Rates of pollution, related diseases in cities of differing pollution
	2. Absence of large changes in climate	* 2. Measures of pollution
	3. Absence of significant changes in plant life, e.g., man-made deserts	3. Climatological records
	* 4. Presence of adequate shelter	* 4. Housing adequacy measures
	5. Absence of dangerous infestation of vermin or other pests	5. Observations of social workers
	6. Adequate safety services: fire, protection, welfare, health, sanitation, utilities	6. Safety statistics, expenditures on services
Adequately healthful environment	1. Low pollution (1940 level?)	* 1. Measures of pollution
	* 2. Adequate recreational facilities	2. Space allotted for recreation per capita in SMSAs
	* 3. Adequate transportation facilities	* 3. Commute rates, frequency of service, change efficiency, degree of congestion, mean parking space per car
	* 4. Adequate housing	* 4. Degree of crowding, quality of structure
Growth-promoting environment	1. Much open or natural space	1. Park-lands per capita; subjective feeling about adequacy of parks
	2. Beautiful environment	2. Subjective feeling about the beauty and character of the community
	3. Public servants seen as promoting group, community welfare	3. Percentage of persons who view police and other community service personnel as threatening or as friendly
	4. Active involvement in community affairs	4. Estimated hours spent on community affairs

Table 4

STANDARDS OF LIVING (INDIVIDUAL)

Attainment Categories	Subcategories	Possible Indicators
Minimum income for necessities and maintaining stake in society	* 1. Dollar income considered necessary, taking family size and geographical location into account	* 1. Data on income distribution; Orshansky levels; ownership of car, television, radio
Modest but adequate income	* 1. Income necessary for reasonable comfort	* 1. Measures taking income and nonmonetary income into account; nonmonetary income principally in terms of leisure
Income enabling considerable freedom of action	1. The ability to give financial support to causes that are believed in	1. Trends in charity
	2. Ability to invest and/or save	2. Levels of investments and savings; trends in consumer and business credit

Table 5

PUBLIC SAFETY (INDIVIDUAL)

Attainment Category	Subcategories	Possible Indicators
Safety from serious injury	* 1. Crimes of violence	* 1. Incidence of serious crimes, with attention to differences among income and socioeconomic groups
	* 2. Personal assault	2. Crime data
	* 3. Homicide	3. Homicide data
Safety from minor injury and property crimes	1. Injuries from negligence	* 1. Crime rates, "hidden rate" estimates
	* 2. Theft	2. Arrests, court decisions, loss estimates
	* 3. Bribery, etc.	
Safety from serious psychic crimes	1. Dishonesty and trickery	1. Incidence rates of slander cases
	2. "Immoral" behavior	2. Measures of overall level of hostility through samples using projective tests
	3. Slander	3. Court data

Table 6

LEARNING, SCIENCE, AND CULTURE (INDIVIDUAL)

Attainment Categories	Subcategories	Possible Indicators
Learning		
Social minimum	* 1. Literacy, elementary arithmetic for all	* 1. Degree of illiteracy and its distribution by geographical area, income, occupation, race
Adequate for social functioning	* 1. Increasing educational achievement	* 1. National achievement tests
	* 2. Increasing educational attainment, especially among disadvantaged groups	* 2. Average years of schooling by area, income, race, status
	3. Education that pays off economically and aids in getting better jobs	3. Fraction of change in occupational status that is attributable to education
Self-motivated education	1. Education that enables personal growth and agrees with personal values	1. Measures of student alienation and disturbance; degree to which minority-group people feel their present education is meeting their needs; tests of personality variables and imagination to see that these, as well as strictly cognitive achievement, improve with schooling
	2. Life-long personal growth	2. The availability of schooling to people of any age, income, race; percentage of those who avail themselves of it; strength of feeling among the elderly that they can no longer contribute and are no longer needed; availability of funds to learn what one wants to

Table 6 (continued)

Attainment Categories	Subcategories	Possible Indicators
Culture		
Indifferent	1. Reads few magazines, seldom listens single-mindedly to music, watches television	* 1. Availability of "high" culture--size and distribution
Passive interest	2. Reads magazines, paper, goes to movies, attends some "high" cultural events, listens to music, watches television	2. Percentage who participate in these activities by income and race
Active interest	3. Actively participates in group cultural events, makes own artistic creations, watches television selectively, reads selectively	3. Percentage of people who feel they are actively involved in some creative endeavor of whatever type; fraction of time spent doing something creative, e.g., "How long each day are you so involved in what you are doing that you are unaware of anything else?"

Table 7

DEMOCRATIC VALUES (INDIVIDUAL)

Attainment Categories		Subcategories		Possible Indicators
Absence of severe threat	1.	Freedom from severe restrictions on job, housing, schooling, public accommodation, voting	* 1.	Measures of segregation
	2.	Absence of strong stereotyping of minority by majority and vice versa	2.	Attitude studies of whites toward blacks and vice versa
	3.	No strongly patronizing or manipulative attitudes of majority towards minority	3.	Measures of felt equality
	4.	Safety from physical threat by majority	4.	Incidence of vigilante-type activity, police brutality, etc.; subjective feeling of fear of this type of action
Freedom from undue social restraint	* 1.	Freedom of speech, press, assembly, privacy, due process	1.	Number of law suits concerning these issues; newspaper space devoted to them; tenor of editorial comments
	* 2.	Freedom of religion, equality before law, antidiscrimination and antilibel protection	2.	Percentage consulted on job decisions, feeling free to protest job decisions; participating in school discussions, feeling free to participate in school discussions
	* 3.	Open housing, public accommodations, choice of neighborhood, child-bearing	* 3.	Measures of alienation, anomie
Freedom for personal growth	1.	Trust of others; overall feeling of security	1.	Content analysis of mass media
	2.	Openness towards the views, beliefs, needs of others	2.	Various public attitude polls
	3.	Tolerance of diversity and of deviants	3.	Various public attitude polls
	4.	Responsiveness to others' views; willingness for others' views to be institutionalized	4.	"Open-minded" newspaper treatment of all viewpoints; acceptance of radicals and conservatives by business
	5.	Dignity accorded to those of other groups	5.	Attitude polls

Table 8

HEALTH (SOCIETY)

Attainment Categories	Subcategories	Possible Indicators
No or inadequate facilities	* 1. Number, type, and distribution of public clinics, hospitals, medical services, doctors, in rural and ghetto areas	* 1. Data on epidemic disease, malnutrition, mental health, disease patterns; trends in facilities per capita served
	* 2. Medical care of indigent, aged	* 2. Medicare participation rates
	* 3. Free-of-bed illness	* 3. Expected lifetime free-of-bed disability
Facilities adequate for social maintenance	* 1. Number, type, and distribution of public and private clinics, hospitals, medical services, doctors	1. Data in per capita terms; facility construction; equipment purchases; trends in medical training and retraining
	2. Medical insurance	2. Availability, coverage, and cost of medical insurance
	3. Control of medical practice	3. Trends in malpractice suits; expenditures on drug validation; pure food and drug activities; practices in pricing of services; kickbacks
Many facilities readily available	1. Medical research	1. Public and private expenditures on medical research; number new compounds marketed annually; advances in medical practice; longevity trends
	2. Widespread availability of free medical checkup facilities	2. Incidence of undiagnosed disease; immunization trends
	3. Free preventive medicine	3. Percent of population with curable mental or physical illnesses
	4. Combined physical and mental health facilities	4. Percent of population judged to have full physical and mental health

Table 9

OPPORTUNITY (SOCIETY)

Attainment Categories	Subcategories	Possible Indicators
No or inadequate opportunity	* 1. Discrimination in employment	* 1. Job and pay differentials attributable to race, background, status, religion
	* 2. Discrimination in schools	* 2. Segregation, scholastic achievement, funding, school facilities, teacher qualifications
	* 3. Discrimination in public places	* 3. Racial prejudice, housing segregation, membership in social clubs, voting patterns
	* 4. Discrimination in law and public safety	4. Composition of juries, arrest patterns, conviction patterns, protection levels in ghettos
Opportunity adequate for social maintenance	* 1. Improvement in above four areas	1. Trends in above indicators
	* 2. Occupational advance	* 2. Job distribution by race, background, status, religion
	* 3. Income advance	* 3. Income distribution by race, background, status, religion
	* 4. Employment	* 4. Unemployment and underemployment patterns and trends
Equal opportunity for all	* 1. Equalization in the four discrimination areas	1. Data on above indicators; data on scholarships, home loans, remedial training, self-help enterprises
	2. Subculture development	2. Freedom to express oneself in accord with own wishes
	3. Expectation-reality gaps	3. Patriotism measures, arrest patterns, content of complaints, television-watching patterns
	4. Potential-reality ratios	4. Mental health measures, creativity indices, sense of well-being, percent of population said to be self-actualizing

Table 10

ENVIRONMENT (SOCIETY)

Attainment Categories	Subcategories	Possible Indicators
No or inadequate control	* 1. Dangerous air and water pollution	* 1. Data on pollution levels
	2. Depletion of natural resources	2. Estimates of supply-need-cost curves; availability of synthetic substitutes
	3. Extermination of wild species	3. Data on wild life
Inconsistent or minimal control	1. Availability of public services	1. Trends in urban transportation; urban renewal; pest and vermin control; welfare; fire, police, sanitation, and health facilities; conservation; pollution control
	* 2. Public recreational space	* 2. Trends in visits per acre year at local, state, and federal parks and monuments; additions to parklands
	* 3. Transportation	* 3. Highway programs; congestion rates; parking facilities; time and cost of travel on public facilities
Full control	1. Healthful housing	* 1. Trends in housing standards
	2. Beautiful cities and parks	2. Consensus of experts; trends in "new towns"
	3. Clean air and water in cities, countryside	3. Data on amount of litter, level of pollution, number of billboards, and visible dumps and junkyards
	4. Public facilities ample and attuned to public demand	4. Same as No. 1, attainment level 2, above; trends in cost and time required to use public facilities

Table 11

STANDARDS OF LIVING (SOCIETY)

Attainment Categories	Subcategories	Possible Indicators
Retrogression	1. Control of inflation	1. Economic data
	* 2. Reduction of poverty and establishment of income maintenance programs	* 2. Welfare data, income distribution, actual minimum wages
	3. Status of slums, school drop-outism, etc.	3. Sociologic and demographic data
Maintenance and preservation	* 1. Maintenance of economic growth	* 1. GNP data, capital resources, manpower resources, productivity indices
	2. Equitable tax structure	* 2. Income distribution
	* 3. Adequate levels of employment	* 3. Unemployment statistics
	4. Satisfactory balance of payments	4. National accounts
	* 5. Rising personal incomes	* 5. Income data
Achievement of excellence	* 1. Level of R&D	* 1. Corporate and government expenditures
	* 2. Level of educational achievement	* 2. Education data
	* 3. Leisure time	* 3. Data on amount and use of leisure time
	4. Quality and variety of goods	4. Census of Manufactures, consumer reports, consumer protection legislation
	5. Diffusion of benefits from the few to many	5. Great variety of economic, social, and demographic data; existence of tax loopholes favoring the rich

Table 12

PUBLIC SAFETY (SOCIETY)

Attainment Categories	Subcategories	Possible Indicators
No or inadequate safety	1. War or threat of war	1. Level of international tension, military expenditures, trends in strategic deterrents
	* 2. Crimes of violence	* 2. FBI statistics, court records, prison records
	3. Insurrectionist rioting	3. Local and federal reports
Adequate for social maintenance	* 1. Theft, larceny, embezzlement, arson	* 1. Trend data, protective activity, bond rates, insurance rates
	2. Auto and drowning deaths	2. Trend data, protective legislation, highway and car design
	3. Accident rates	3. Trend data, insurance rates
	4. Dishonesty, trickery, "immoral" behavior, slander	4. Court convictions, consumer protection activity, food and drug regulations
Full safety from external physical, economic, and psychological threats	1. Availability of protection	1. Death and injury rates
	2. Adequacy of protection	2. Training, techniques, and numbers of protection officials; rehabilitation rates; data trends
	3. Sense of being protected	3. Tension and fear measures, hostility indices, insurance rates

Table 13

LEARNING, SCIENCE, AND CULTURE (SOCIETY)

Attainment Categories	Subcategories	Possible Indicators
Little extant	* 1. Number and distribution of elementary schools	* 1. Illiteracy rates
	* 2. Number of teachers, scientists, engineers, artists	2. Number of professionals per capita
	* 3. Compensatory education	* 3. School dropout rates, scholarship programs for underpriviledged, need for cultural enrichment of ghetto education
Adequate for social maintenance	1. Qualifications and dedication of teachers, scientists, engineers, artists	1. Education and motivation levels of professionals
	* 2. Number and distribution of secondary schools and junior colleges	* 2. Average years of schooling by area, income, race, status
	3. Influence of professionals in social affairs	* 3. Patterns of professional employment
Much extant and readily available	* 1. Social demand for teachers, scientists, engineers, artists	1. Income levels of professionals, job availability
	2. Public financing of education, teacher training, R&D, arts	2. Public expenditures in these fields, scholarship availability
	* 3. Number and distribution of colleges and universities	* 3. Percent of qualified population taking advantage of educational opportunities
	4. Responsiveness of society to humanistic viewpoints	4. Number publications and official statements reflecting humanism

Table 14

DEMOCRATIC VALUES (SOCIETY)

Attainment Categories	Subcategories	Possible Indicators
No or minimal freedom	* 1. Abridgment of civil rights	* 1. Analysis of civil suits; desegregation
	* 2. Abridgment of legal rights	2. Analysis of court decisions, arrest patterns
	* 3. Abridgment of human rights	* 3. Institutional discrimination in employment, housing, education, etc.
Adequate for social	* 1. Freedom of speech, press, assembly, privacy, due process	1. Influence of public in decisions affecting it, voting patterns, false arrests, availability of free legal aid
	* 2. Freedom of religion, equality before law	2. Private business, government discrimination measures
	3. Freedom from libel, illegal monopoly, illegal business practices, discrimination	3. Adherence to regulations, BBB activities, court records, data on actual minimum wages, trends in equal pay for equal work, trends in new laws
Synergistic freedoms	1. Coincidence of institutional and individual goals	1. Measures of insurrectionism, riots, civil disobedience, drop-outism, alienation, anomie, generation gaps
	2. Attainment of full civil, legal, and human rights	2. Number germane law cases
	3. Full participative democracy	3. Degree to which one-man, one-vote doctrine holds; voting records, influence of machine politics, availability of candidates representing voter spectrum, degree of power elitism

Conclusion

The foregoing tables can be used to construct two-dimensional matrices (attainment category by indicator area) for the individual and the social system. Such matrices clearly reveal that it is not possible to assess where the nation (or segments) stand in the attainment spectra, and hence it is not possible to interpret the attainments in terms of global quality of life or quality of society measures.

In the first place, most of the available data (the starred items) refer only to the lower levels of attainment. As a result, quality measures would be seriously skewed to the low side. Secondly, the data come from highly disparate sources, with no apparent common interpretation base; further, the data are in themselves in highly aggregated form. As a result, it is difficult, if not impossible, to arrive either at "intensity" (level of attainment) measures or "extensity" (across indicator areas) measures for a given group, a typical citizen, or even for social functioning. The available data simply do not provide sufficient detail for these crucial kinds of assessments. These considerations indicate that no quality of life or quality of society assessments can be synthesized from the data available in the draft Social Report. This effort, however, provided valuable insights toward defining the criteria that a comprehensive social indicator system should meet.

V TOWARD A COMPREHENSIVE NATIONAL SOCIAL DATA SYSTEM

Failure of the foregoing effort to synthesize master social indicators from the draft Social Report led to a more fundamental approach to making operational a national social data system consonant with the heuristic model presented earlier. This approach consists of a series of loose but systematically linked data collection efforts. Over time, these efforts would generate three levels of social analysis: (1) Descriptive social reporting, which eventually would lead to the possibility of quantified, (2) Projective social trending and, with the further input of validated systems models, to (3) Predictive social accounting.

Descriptive social reporting is represented by the draft Social Report. The focus is on assessing progress and problems in broad social areas, principally through the use of time-series data. Projective social trending implies the projection of alternative futures on the basis of current trends and planned programs. At this level of analysis, some rough interactive effects among events in the various social areas might be taken into account. Finally, with increased sophistication, it may be possible to construct a number of systems models that would reflect most of the primary interactions and, hence, provide deeper insight into future events in cost-benefit terms and to specify more precisely the possible impact of programs on them. This is called predictive social accounting.

Criteria

The attempt to synthesize high level indicators from the draft Social Report produced the following criteria that are regarded as desiderata to be met by a comprehensive social accounting system:

- Social indicators must utilize both the individual and larger groups (community, region, nation) as basic units of analysis, so that subsequent work can empirically deduce valid relationships between societal conditions and individual welfare.

- An adequate degree of commonality must exist in the demographic variables that accompany the various social indicators; further, commonality is required of social indicators describing conditions in different times and places. Commonality is essential, if diverse data at low levels of aggregation are to be combined into data clusters at higher levels of aggregation.

- Insofar as possible, data should be collected in regular time series. For the purpose of program evaluation it is necessary, at a minimum, to have "before" and "after" data, so that change over time can be measured.

- Some scale of attainment must be used at all levels of abstraction, ranging from the lowest to the most global measure. In the absence of attainment scales, data cannot be interpreted in terms of overall progress.

- Social indicators must be selected to reflect high levels of attainment as well as intermediate and low levels; otherwise, no total quality of life assessments can be derived, nor can the position of population segments be identified. Further, indicators must be sufficiently comprehensive to embrace the interests of every major stakeholder group in the society.

- Value considerations and the status of the individual must be integral to the system if the analyses are to be meaningful. Value issues included in selecting social indicators and setting attainment levels have rarely been made explicit: the researcher usually claims to be doing "value-free" research or leaves the value decisions up to someone else--perhaps a mythical "decision-maker."

A principal way that values enter into social accounting is in the choice of the indicators used. For example, the President's Commission on Goals, in their report, states that "The first national goal to be pursued . . . should be the development of the individual to his fullest potential,"[19] and that "All of our institutions . . . must further enhance the dignity of the citizen."[20] Yet Biderman's study of the major sources for social data revealed not a single indicator dealing with individual dignity.[21] This tacit decision of social observers not to include data dealing with individual dignity is a value choice of immense significance.

Linking the Individual and the System

Certainly one of the key problems suggested by the foregoing criteria is that of combining in an evaluative context the concerns of the individual and the performance of the social system. Figure 3 depicts how such linkages might be achieved. It will be noted that the social system half of the model has been divided into two portions, "environment" and "social system." The reason for this refinement is that the individual asks several things of the society. On one hand, he requires that the society, as a structural entity, operates satisfactorily in performing group or community functions. On the other hand, he asks that it provides him with individual services and freedoms of whatever sort are required for his full development. The units of measure for these two types of things are very different, one relating to the individual himself and the other to the society as a separate unit. Hence, two sets of rather different indicators are required.

It is important to note that some indicators suitable for individuals will have to reflect the person's total personality as a unit; that is, the total person is almost surely different from the sum of his reactions to societal influences and cannot be assessed via a

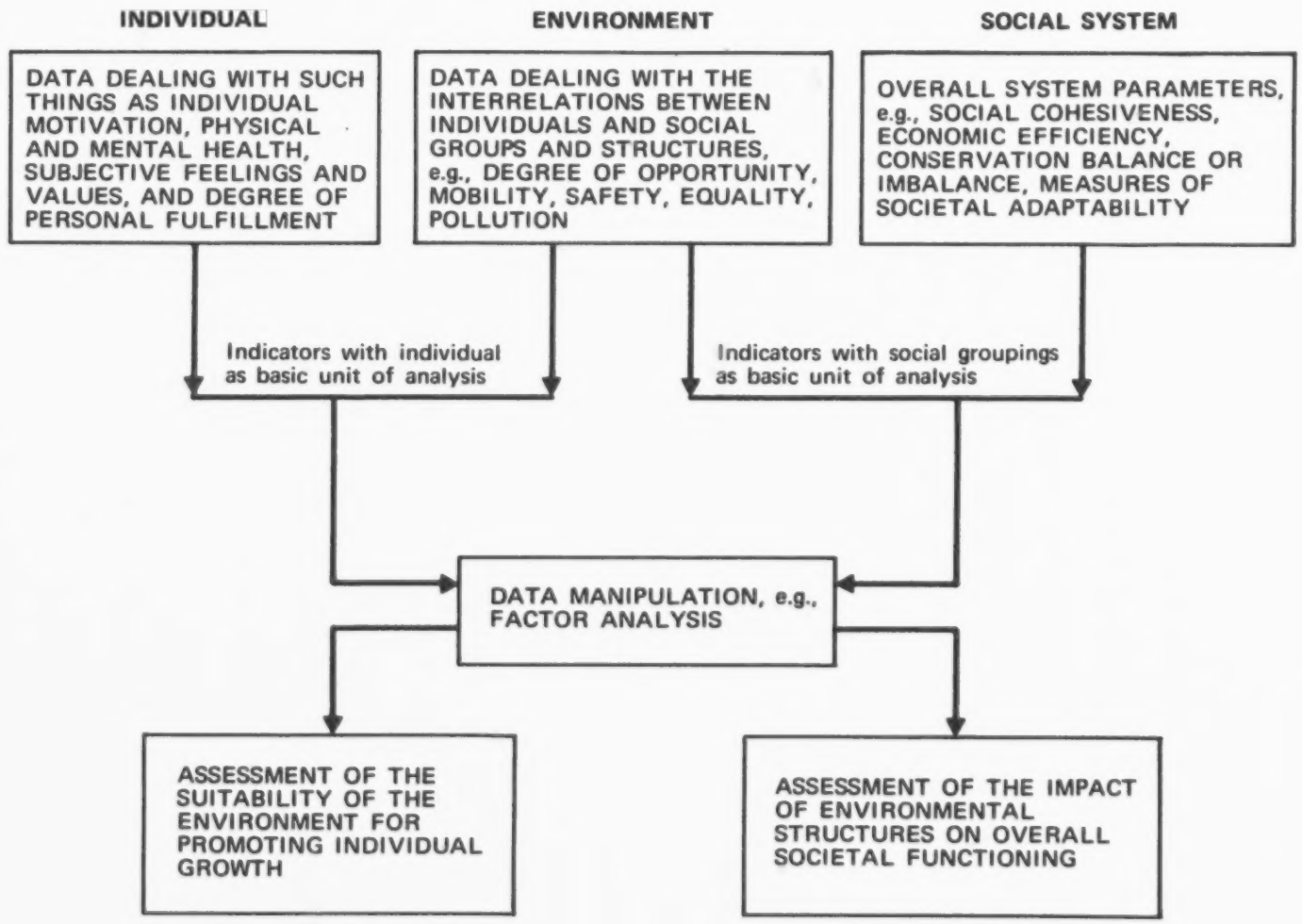

INDIVIDUAL
ENVIRONMENT
SOCIAL SYSTEM
DATA DEALING WITH SUCH THINGS AS INDIVIDUAL MOTIVATION, PHYSICAL AND MENTAL HEALTH, SUBJECTIVE FEELINGS AND VALUES, AND DEGREE OF PERSONAL FULFILLMENT
DATA DEALING WITH THE INTERRELATIONS BETWEEN INDIVIDUALS AND SOCIAL GROUPS AND STRUCTURES, e.g., DEGREE OF OPPORTUNITY, MOBILITY, SAFETY, EQUALITY, POLLUTION
OVERALL SYSTEM PARAMETERS, e.g., SOCIAL COHESIVENESS, ECONOMIC EFFICIENCY, CONSERVATION BALANCE OR IMBALANCE, MEASURES OF SOCIETAL ADAPTABILITY
Indicators with individual as basic unit of analysis
Indicators with social groupings as basic unit of analysis
DATA MANIPULATION, e.g., FACTOR ANALYSIS
ASSESSMENT OF THE SUITABILITY OF THE ENVIRONMENT FOR PROMOTING INDIVIDUAL GROWTH
ASSESSMENT OF THE IMPACT OF ENVIRONMENTAL STRUCTURES ON OVERALL SOCIETAL FUNCTIONING

Figure 3 SCHEMATIC SHOWING MAJOR INDICATOR AREAS AND THEIR RELATIONSHIPS

strictly aggregative route. To obtain total-personality measures, field research including longitudinal studies throughout life, as well as cross-sectional data, will probably be required. In assessing the needs and wants of groups, some combination of individual-oriented indicators and society-oriented indicators may be necessary.

The two boxes at the bottom of Figure 3 are, in effect, operational restatements of "quality of the social performance" and "quality of individual life." This flows from the assumption that a social structure that is highly suitable for individual growth and opportunity will, in fact, produce an excellent quality of life for individuals. Further, a social ecology marked by efficient internal operations, conservation of its resources, and adaptiveness of overall social functioning is presumed to possess the energy and responsiveness required to maintain and improve itself.

The ultimate aim of the proposed approach is to devise a mathematical simulation of the entire social accounts system. As data accrue over time and are stored in a national data bank, it will become increasingly possible to devise a validation base, not only for the more conventional "part-theory" social science investigations, but for the more holistic simulation models of society that are the contemporary leading edge of integrative efforts in social science. While some practitioners like to draw distinctions between "social science" and "policy science," the discipline of societal modeling and simulation seems to unify these rather different orientations. Ultimately, a mathematical simulation model may be the largest payoff of the entire national social data system, because truly quantitative social accounting depends on such models.

Steps to Implementing the System

A comprehensive system of national social data capable of generating descriptive social reporting, projective social trending, and predictive social accounting might be implemented by the following steps. Figure 4 schematically summarizes the concept.

1. The scope of the program must first be determined. Are the aims to be achieved specific to local programs, to local ecology, to national programs, to the national ecology, or to all? The problems raised by determining the program scope are of such central importance that discussion is warranted before proceeding to subsequent steps.

   It might seem that the ideal solution to the scope problem would be to opt for a truly comprehensive national data collection agency, with the aim of measuring everything of apparent significance. It appears, however, that costs would be truly staggering--very likely more than the potential benefits would justify.

   It could be argued that the optimal approach would entail the development of a truly comprehensive taxonomic system of interlinking goals, attainment categories, and supporting indicators from which various users could select those that uniquely fit the needs of their tasks--be they program evaluation, priority setting and resource allocation, or social accounting-systems modeling. Even this, however, may be an overly ambitious aim, although it seemingly could be attained, given sufficient resources and cooperation among practitioners of the social policy sciences.

   A more manageable approach to the problem might utilize the growing number of federally funded social remediation programs and their follow-on evaluations. A "master" list of social indicators might be generated that would reflect the concerns of a diverse array of social programs. Clusters of these indicators could be selected to reflect such factors as:

   - The use to which the indicators would be put (e.g., program evaluation, qualitative problem isolation, priority analysis)
   - The universe of interest (e.g., a boy's gang, a community, the nation)

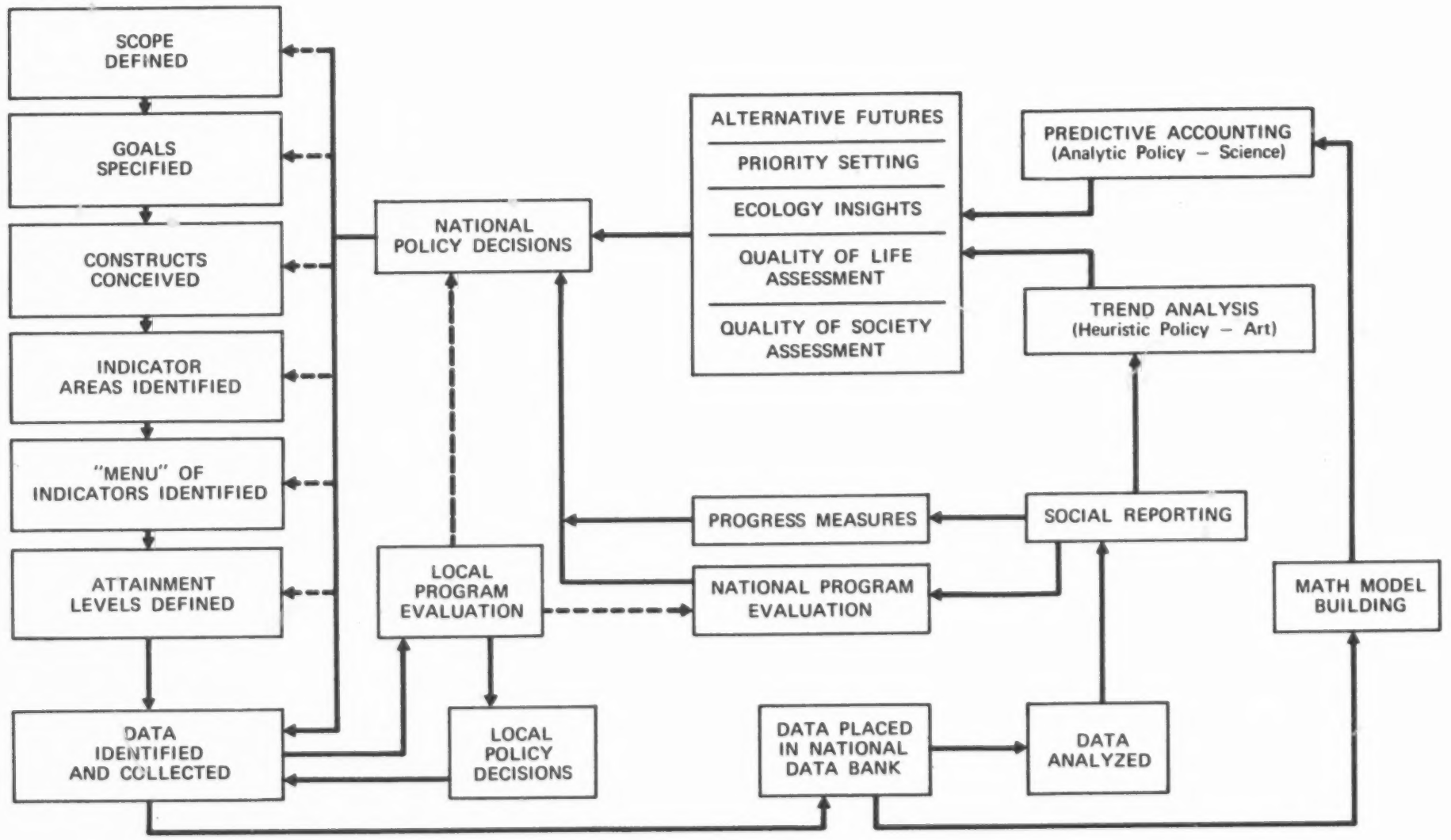


Figure 4 SCHEMATIC OF COMPREHENSIVE SOCIAL DATA SYSTEM

- The areas of concern (e.g., education, crime, balanced allocation of resources)

The key commonality of social programs is their remedial intent. Social betterment, of course, must be considered in an overall context of societal and human ecology; hence, extensive overlapping of relevant social indicators would probably result. If data on these indicators were stored in a national data archive at a sufficiently low level of aggregation, analysis of them should produce higher level syntheses of social indicators than are feasible today. This important property, taken together with the advantages in timesaving and comprehensiveness that would accrue to individual programs in having ready-made indicators to select from, suggests that something approximating this approach should be considered for actual implementation. Such a structure will be assumed in the steps that follow.

2. Generate a list of all relevant goals and values of leaders and recipients of programs (e.g., Goals for Americans, "stakeholder" desires), as well as important constructs from theories relevant to chosen goals and program objectives.

3. Develop an overall taxonomy system under which to organize sets of social indicators which are, at various levels of abstraction, mutually exclusive, exhaustive of the domain of interest, and homogeneous with respect to level of abstraction and dimensions represented.

4. Deductively ("prescriptively" in Biderman's[22] terminology) delineate sets of social indicators.

5. Conduct field pilot studies within individual programs, with the aim of refining measures and gauging the suitability of indicators for the particular study.

6. Work out sets of attainment levels appropriate to the problem at hand.

7. Collect data by means of a variety of programs at various times and places. Each program would forward its data (collected at low levels of aggregation) to a central data bank; higher level data and appropriate conclusions would also be made available to the national data archive.

8. Analyze data. Analyses would determine the highest order clusters that can validly be extracted from the data. At this point, it should be possible to:

   - Prepare descriptive social reports;

- Draw conclusions regarding the validity of hypothesized relationships among variables (e.g., correlations, factors, clusters of factors, hierarchial properties) based on one point in time;
- Prepare a set of master indicators with empirical justification for the degree of inclusiveness of each. This step would reduce the required number of inputs, but each would have greater explanatory power. Higher level syntheses defining levels of attainment across category areas will be facilitated in many areas, thereby coming closer to overall "quality of life" assessments.

9. Translate into measurable form all higher level "factors" that have operational equivalents. This would lead to empirically selected high level social indicators that can be both directly and indirectly assessed.

The foregoing steps represent the next logical stage in the evolution of the kind of comprehensive social indicator-accounting system to which the draft Social Report points. Subsequent steps could follow the following sequence:

10. Continue collection of data, including newly added master indicators that have directly measurable equivalents.

11. Repeat analyses described in Step 8, above. The value added from the second (and all subsequent) data collection efforts includes the possibility of:

    - Making "momentum" projections into the future--i.e., projective social trending--on the basis of previous descriptive social reporting;
    - Detection of emerging problems and satisfactions;
    - Use of cross-lagged panel correlation and similar multivariate techniques that infer causality from correlational data gathered across time. This would lead to social accounting as the draft Social Report defines it and to estimates of causal relationships and interactions.

12. Devise a mathematical model of society. The data base built up in the foregoing studies could be utilized to generate a simulation model inductively. This model, in turn, could be employed to "predict" the future on a much firmer base than would be possible from linear-momentum projections alone.

Advantages

The system of evolving complexity and sophistication described above is open to new inputs and emergent changes at all stages of development. Some of the rather striking advantages of such a systemized approach include:

- It is national in scope but provides overlapping coverage.
- It allows for the synthesis of subjective and objective data, thus suggesting the possibility of tying in the concept of human attainment-growth-satisfaction with the National Income Accounting system.
- It utilizes deductive guidance from existing goals, policy, and theory, as well as inductive generation of new policy-relevant relationships. The interplay should validate or correct and enrich existing concepts.
- It has characteristics that quite naturally bend to the needs of both heuristic policy research and analytic social science research.
- It leads to a natural fusion of the "systems" model and the "goals" model approaches to the measurement of success.[23]
- It provides an overall framework to guide an orderly and integrated growth pattern for the developing technology of social accounting.

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